PATENT SPECIFICATION

Convention Date (Germany): Dec. 19, 1927.

302,657

Application Date (in United Kingdom): Dec. 14, 1928. No. 36,968/28.

Complete Accepted: March 7, 1929.

COMPLETE SPECIFICATION.

Improvements in and relating to Turbine Blades.

We, INTERNATIONAL GENERAL ELECTRIC COMPANY INCORPORATED, of 120, Broadway, New York, United States of America, Merchants, a Corporation organised under the laws of the State of New York, United States of America (Assignees of ALLGEMEINE ELEKTRICITATS GESELLSCHAFT, of Friedrich Karl Ufer, 2/4, Berlin, N.W. Germany, a German Company), do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to turbine blades and has for its object to provide an improved blade which will be more capable of resisting erosion than those hitherto proposed.

Turbine blades, over which wet steam passes, particularly when made of steel, frequently become eroded in a manner which cannot be entirely obviated, even by alloying the steel with nickel, chromium and the like, since in the case of such phenomena, it is less a question of chemical than of mechanical attacks.

Attempts have already been made to counteract the erosive effect of the steam or other working fluid on the turbine blades, by increasing the hardness of the blade material, and more particularly of the inlet edges thereof by heat treatment. This method of hardening is however, disadvantageous because other parts of the blade, as for instance, more particularly the projections provided at the blade tips for the purpose of engaging with the rim, are also subjected to the heating and are disadvantageously influenced by this heat treatment.

According to the present invention, this disadvantage is obviated in that those parts of the blade which are subjected to the erosive action of the steam or other working fluid are hardened, during or after the manufacture of the blade, by mechanical means, as for example by rolling, drawing, or hammering. The parts subjected to this treatment are more particularly the entrance edges or those parts of the entrance edges at which the erosion would occur. The mechanical hardening may be carried out while the blade is being produced, by rolling, or drawing, or by increased pressure at the desired point. Alternatively the hardening may be effected subsequently in a separate operation.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

A turbine blade in which those parts which are subjected to the erosive action of the steam or other working fluid are hardened, during or after the manufacture of the blade, by mechanical means, as for example, by rolling, drawing, or hammering.

Dated this 11th day of December, 1928.

JOHN GRAY,
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Agent for the Applicants.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1929.
[*Price* 1/-]